

WHAT IS CLAIMED IS:

1. A power transformer, comprising:

(a) a transformer coil body;

(b) a metallic core electrically connected to said transformer coil body;

and

(c) a polymer positive temperature resistivity element electrically

connected to said transformer coil body to limit current flow through said transformer

coil body upon an occurrence of an activation event.

2. The power transformer of claim 1 wherein said activation event is a short circuit condition.

3. The power transformer of claim 1 wherein said activation event is an overcurrent condition.

4. The power transformer of claim 1 wherein said activation event is external heating of said transformer coil body.

5. The power transformer of claim 1 wherein said transformer coil body comprises a primary winding and a secondary winding of said transformer coil body.

1 6. The power transformer of claim 5 wherein said polymer positive temperature
2 resistivity element is electrically connected to said primary winding of said
3 transformer coil body.

1 7. The power transformer of claim 5 wherein said polymer positive temperature
2 resistivity element is electrically connected to said secondary winding of said
3 transformer coil body.

1 8. A power transformer, comprising:
2 (a) a transformer coil body;
3 (b) a metallic core electrically connected to said transformer coil body;
4 (c) a polymer positive temperature resistivity element electrically
5 connected to said transformer coil body to limit current flow through said transformer
6 coil body upon an occurrence of an activation event; and
7 (d) a light emitting diode electrically coupled to said polymer positive
8 temperature resistivity element to signal activation of said polymer positive
9 temperature resistivity element.

1 9. The power transformer of claim 8 wherein said activation event is a short
2 circuit condition.

1 10. The power transformer of claim 8 wherein said activation event is an
2 overcurrent condition.

1 11. The power transformer of claim 8 wherein said activation event is external
2 heating of said transformer coil body.

1 12. The power transformer of claim 8 wherein said transformer coil body
2 comprises a primary winding and a secondary winding of said transformer coil body.

1 13. The power transformer of claim 12 wherein said polymer positive
2 temperature resistivity element is electrically connected to said primary winding of
3 said transformer coil body.

1 14. The power transformer of claim 12 wherein said polymer positive
2 temperature resistivity element is electrically connected to said secondary winding
of said transformer coil body.

1 15. A power transformer, comprising:

2 (a) a transformer coil body;

3 (b) a metallic core electrically connected to said transformer coil body;

4 (c) a polymer positive temperature resistivity element electrically
5 connected to said transformer coil body to limit current flow through said transformer
6 coil body upon an occurrence of an activation event;

7 (d) a solenoid electrically connected in parallel with said polymer positive
8 temperature coefficient resistivity element to create a magnetic field when current
9 flows through said solenoid; and

10 (e) a switch mechanically linked to said solenoid and electrically
11 connected in series with said transformer coil body, said switch activated into an
12 open position to eliminate leakage current flow to said transformer coil body upon
13 activation of said polymer positive temperature resistivity element and current flow
14 through said solenoid.

1 16. The power transformer of claim 15 wherein said activation event is a short
2 circuit condition.

17. The power transformer of claim 15 wherein said activation event is an
overcurrent condition.

18. The power transformer of claim 15 wherein said activation event is external
heating of said transformer coil body.

19. The power transformer of claim 15 wherein said transformer coil body
comprises a primary winding and a secondary winding of said transformer coil body.

1 20. The power transformer of claim 19 wherein said polymer positive
2 temperature resistivity element is electrically connected to said primary winding of
3 said transformer coil body.

1 21. The power transformer of claim 19 wherein said polymer positive
2 temperature resistivity element is electrically connected to said secondary winding
3 of said transformer coil body.

1 22. A method of limiting current flow in a transformer, comprising:
2 electrically connecting a polymer positive temperature coefficient
3 resistivity element in series with a primary winding of the transformer wherein said
4 polymer positive temperature coefficient resistivity element increases its resistivity
5 at least 100 times at ambient temperature upon an occurrence of an activation
6 event.

1 23. The method of limiting current of claim 22 wherein said activation event is a
2 short circuit condition.

1 24. The method of limiting current of claim 22 wherein said activation event is an
2 overcurrent condition.

1 25. The method of limiting current of claim 22 wherein said activation event is
2 external heating of said transformer.